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(54) **RECORDING METHOD**

(57) Abstract:

PURPOSE: To obtain an image superior in color developing properties, optical density, and others and to obtain a recording image having glossiness on the surface thereof, a high light transmittance to all regions of rays, and superior resistances to water, light, and stains, by a metod wherein, after a recording with an ink is applied to a material to be recorded having a substrate and an ink accepting layer, a light-transmitting layer is provided on the accepting layer and thereafter the substrate is separated.

CONSTITUTION: A material to be recorded is provided with a substrate and an ink accepting layer. The porous ink accepting layer is formed by applying particles of silica, alumina, and the like with an average particle diameter of 0.01W100μm and a binder of polyvinyl alcohol, starch, etc., on the substrate of paper, polyester, or the like. After an image is formed on the ink accepting layer using a water-soluble dye of direct dye, acidic dye, basic dye, etc., as an ink by an ink jet method, a light- transmitting layer is formed thereon. After the light-transmitting layer is formed, the substrate of the material to be recorded is peeled off. In this manner, the formed image is enhanced in various fastness properties, such as surface glossiness, water resistance, and light resistance, and the material to be recorded is reduced in thickness as a whole, which increases a light transmittance to all regions of rays to impart a recorded image improved in backlight characteristics.

English Summary of Citation 1 (JP-63-286392A)

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Title of Invention

Recording Method

Scope of Claims for Patent

"1. A recording method characterized by comprising:

after recording an ink receiving layer of a material to be recorded at least having a substrate and the ink receiving layer with an ink, providing a light-transmitting layer on the ink receiving layer, followed by separating the substrate.

2. A recording method as claimed in claim 1, wherein the ink receiving layer is a porous layer.

3. A recording method as claimed in claim 1, wherein the ink receiving layer is a continuous layer.

4. A recording method as claimed in claim 1, wherein the ink receiving layer is hydrophilic.

5. A recording method as claimed in claim 1, wherein the ink is an aqueous ink.

6. A recording method as claimed in claim 1, wherein the recording method is an inkjet type.

7. A recording method as claimed in claim 1, wherein the light-transmitting layer is a transparent thermoplastic resin layer.

8. A recording method as claimed in claim 1, wherein the light-transmitting layer is laminated with an adhesive."

Detailed Description of the Invention

1) Page 1, Col. 3, Lines 6 - 11

The present invention relates to a recording method using a recording liquid ("ink" hereinbelow) such as a felt pen, a fountain pen, a pen plotter, an inkjet recording apparatus, make specifically, a recording method capable of easily providing a high-quality image having excellent gloss, water-resistance, storage stability, total light transmitting ratio, etc.

2) Page 2, Col. 2, Last Line - Col. 3, Line 6

Accordingly, the object of the present invention is to provide a recording method capable of easily obtaining a high-quality image having an excellent color developing property, optical density, etc.

Furthermore, the object of the present invention is to

provide a recording method providing a recording image having a gloss on the surface thereof, a high all light-transmitting ratio and an excellent durability such as water resistance, light resistance and stain resistance.

3) Page 2, Col. 3, Lines 10 - 14

Namely, the present invention resides in a recording method characterized by comprising, after recording an ink receiving layer of a material to be recorded at least having a substrate and the ink receiving layer with an ink, providing a light-transmitting layer on the ink receiving layer, followed by separating the substrate.

4) Page 2, Col. 4, Line 15 - Page 3, Col. 1, Line 6

As the method for forming the porous ink receiving layer on the substrate, the following embodiments are mentioned.

(1) A formation method from particles having an average size of 0.01 - 100 μm and a hinder;

(2) A method for making the inside of the layer porous by dispersing another material in a coated film, followed by treating the same with the solvent to dissolve out the material;

(3) A method for dispersing a resin in a mixed solvent, wherein a high hailing point solvent makes the inside of the layer porous, as a poor solvent for the resin;

bubbles with a heat generating resistance element to send the ink.

After the recording, a composition B-1 comprising a polyolefin-based hot melt was used to form a light-transmitting layer having a thickness of 100 μm.

After the lamination of the composition B-1, the recorded material was dipped in 10°C water for 30 seconds to separate the substrate (i.e., high quality paper). The resultant recorded sample was evaluated. The results are shown in Table 2 below.

Example 2

NP copying paper was used as the substrate and a composition A-2 (i.e., 100 parts of calcium carbonate, 40 parts of hydroxyethylcellulose, 1 part of polyethyleneimine, 2 parts of water-dispersion type reactive urethane, 0.06 parts of a reaction catalyst and 300 parts of water) was coated in the same manner as in Example 1.

The recorded sample was obtained in the same manner as in Example 1, except that a composition B-2 (20 μm of an adhesive layer of NR and 50 μm of a transparent substance of polyethylene terephthalate) was used. The results are shown in Table 2.

Table 2

	Example*1		Comp. Examples		
	1	2	1*2	2*3	3*4
Optical Density	1.30	1.25	1.21	1.30	1.20
Color Brightness	++	++	+	++	++
Water Resistance	101	100	95	100	94
All Light Transmittance	81	75	23	24	75
Glossiness	86	89	7	88	8
Backlight Suitability	+	+	-	-	+

*1: Only two Examples are included in Citation 1

*2: No light-transmitting layer and no separation of the substrate in Example 1

*3: No separation of the substrate in Example 1

*4: Polyethylene terephthalate film having a thickness of 50 μm was used in Example 2.